



MSL EDL Landing Site Safety Assessment and Prelaunch Status

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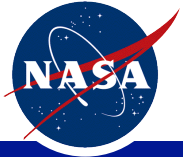
8th International Planetary Probe Workshop
Portsmouth, Va.
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Introduction



- MSL EDL system is finishing its final V+V prior to launch in November 2011
- The system has passed it's S/W-H/W run-for-record in April
- EDL risk assessment has been performed at all landing sites to support site selection
 - All sites have very low EDL risk (< 2%)
- Margins comfortable at all sites
 - Gale has highest margins
 - Eberswalde has lowest margins
 - Under worst case conditions, all margins at all sites still acceptable
- External review of EDL landing site risk assessment has been conducted
 - Board concurs with EDL team's conclusions
- EDL design is nearing completion of V+V and the team is comfortable flying to any site

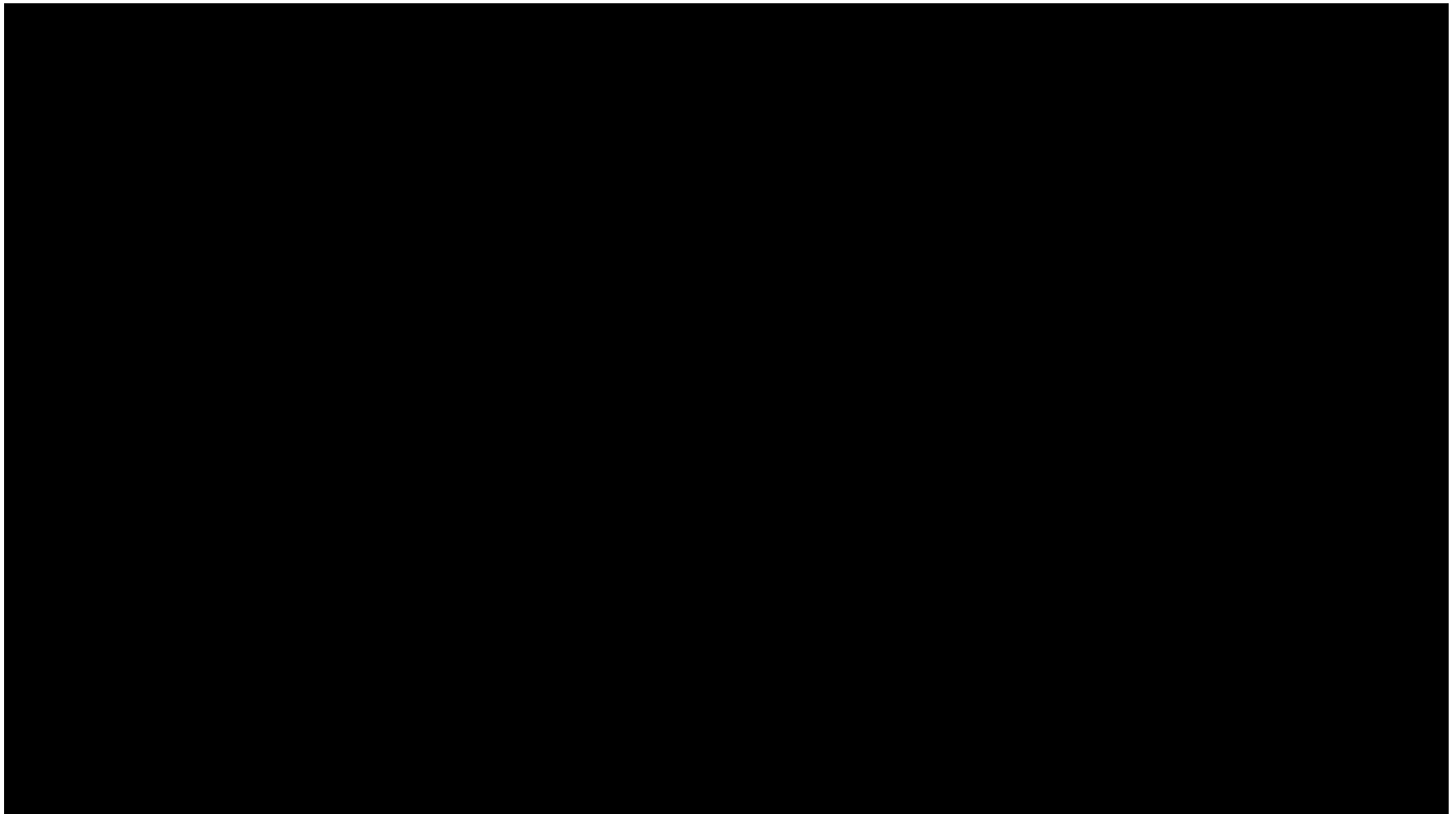


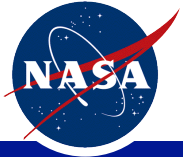
Animation



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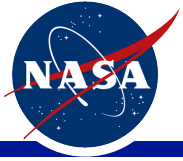


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Pre-launch Status

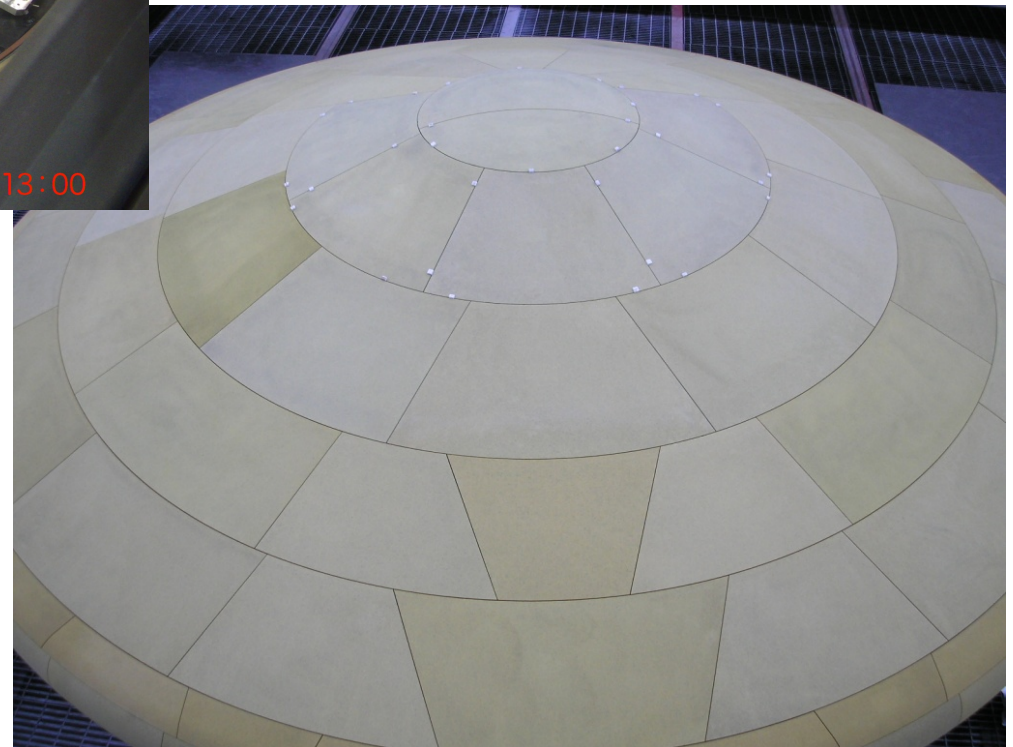
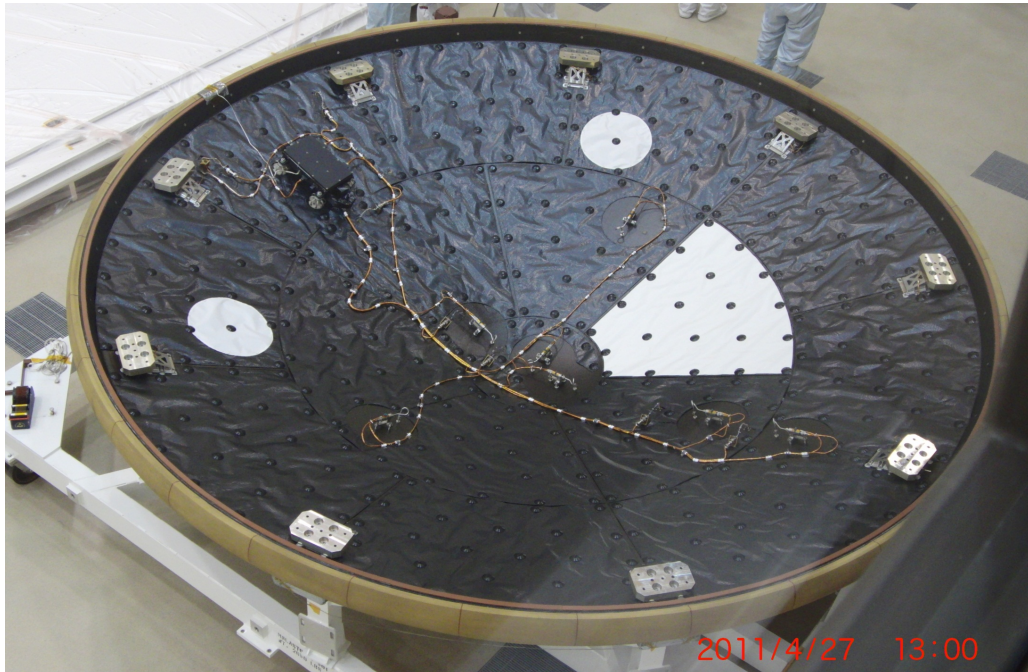


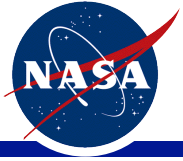
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Spacecraft is BUILT!!!!



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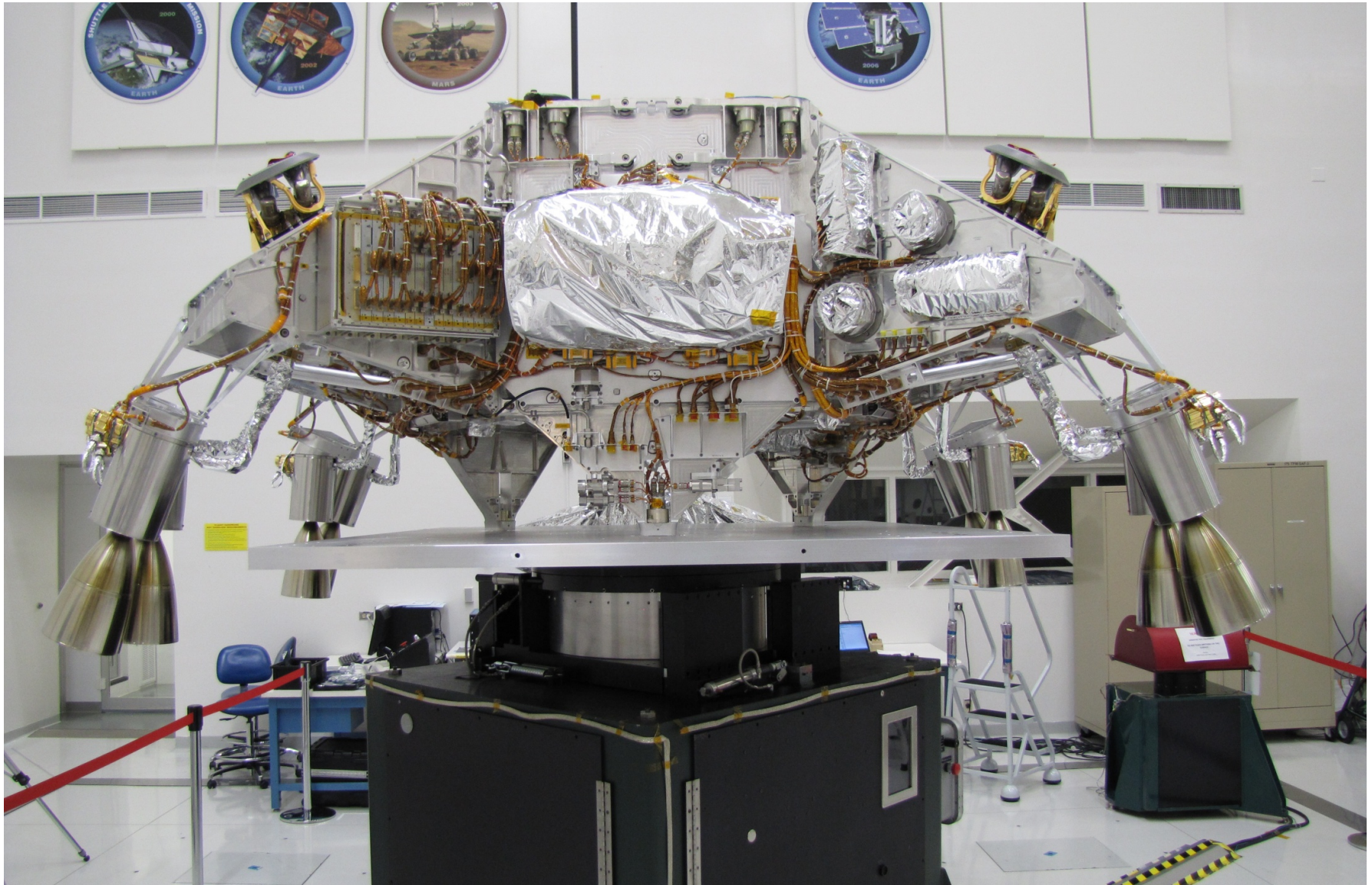


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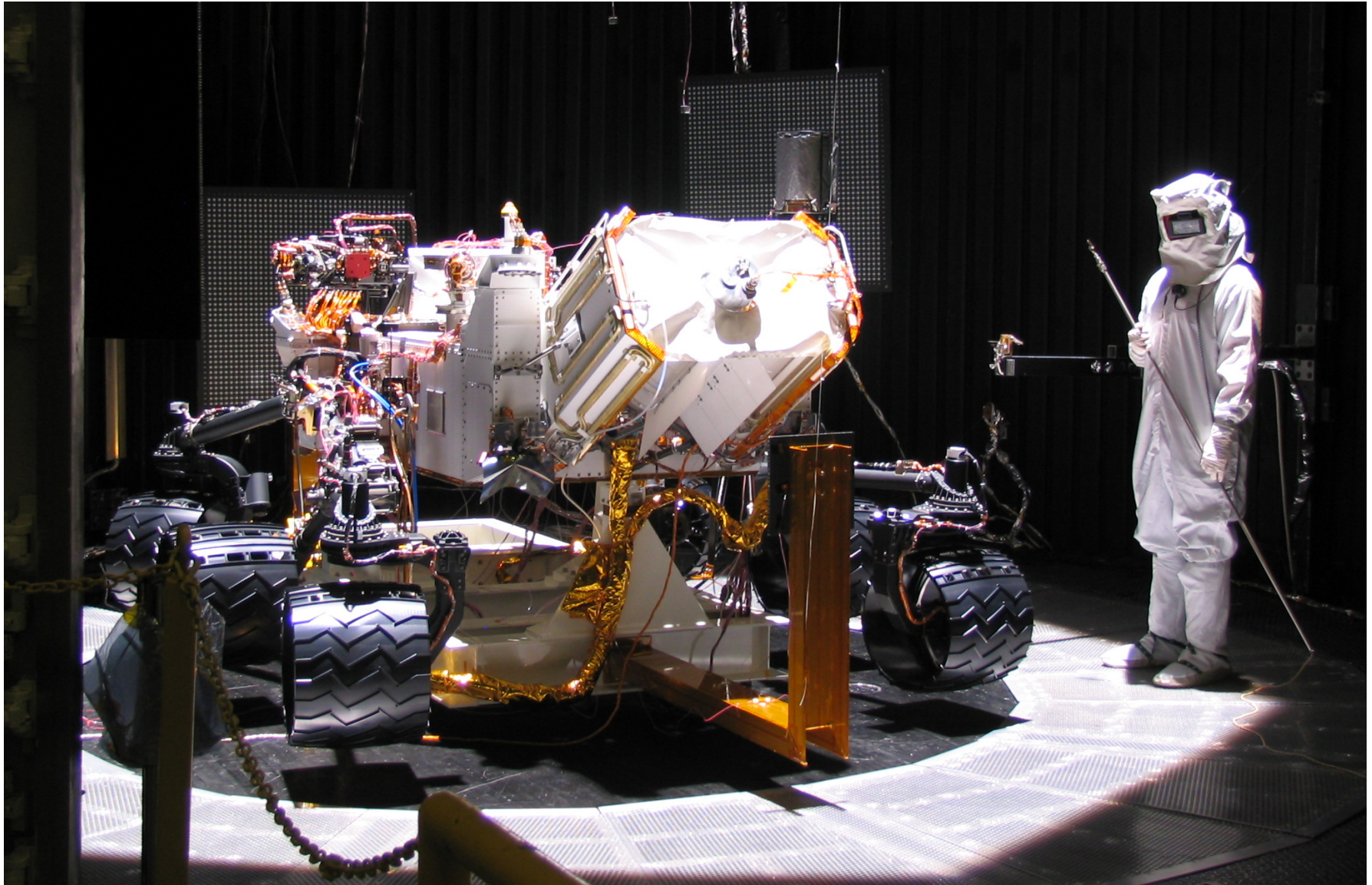


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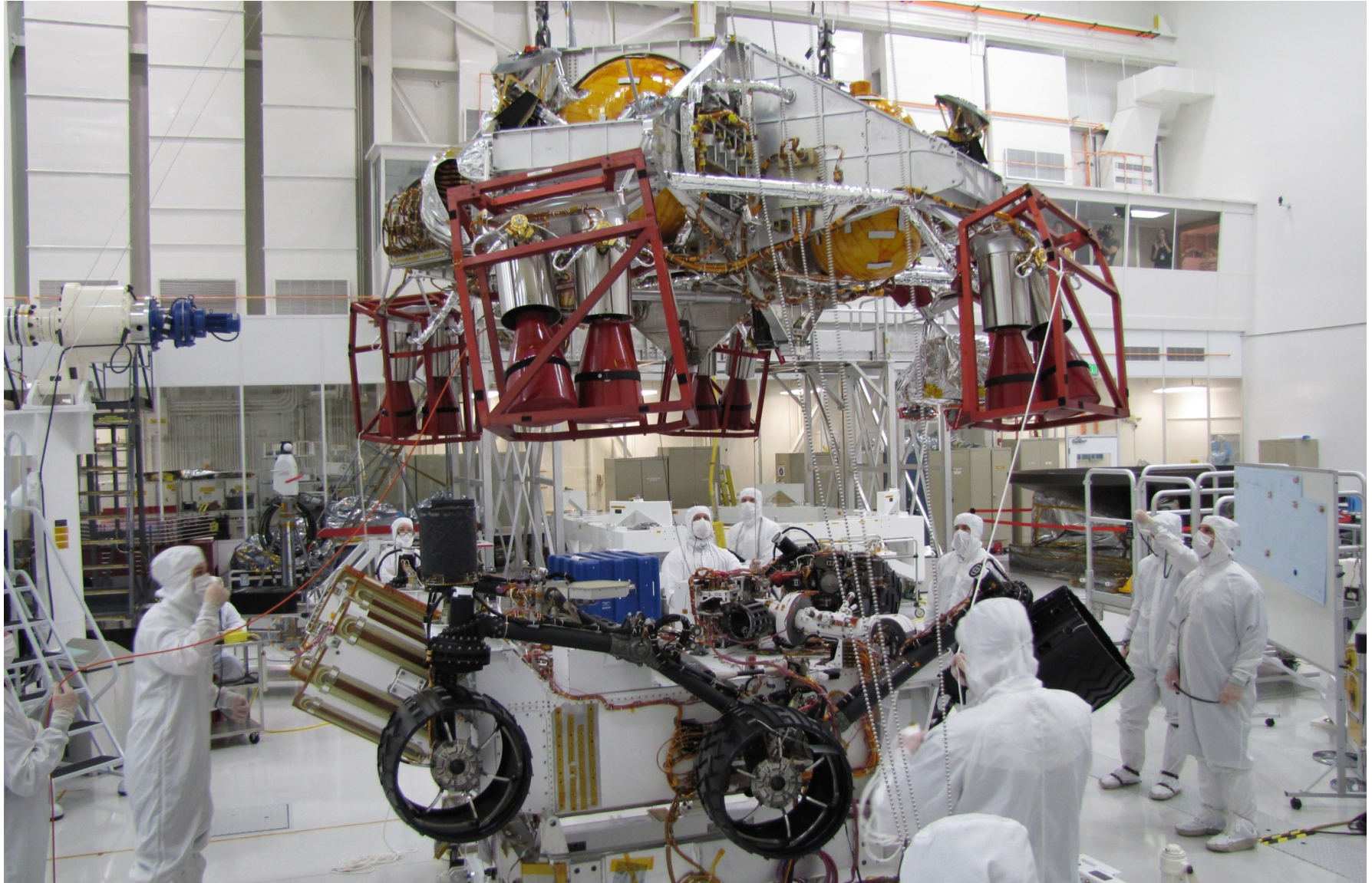


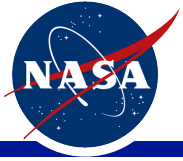
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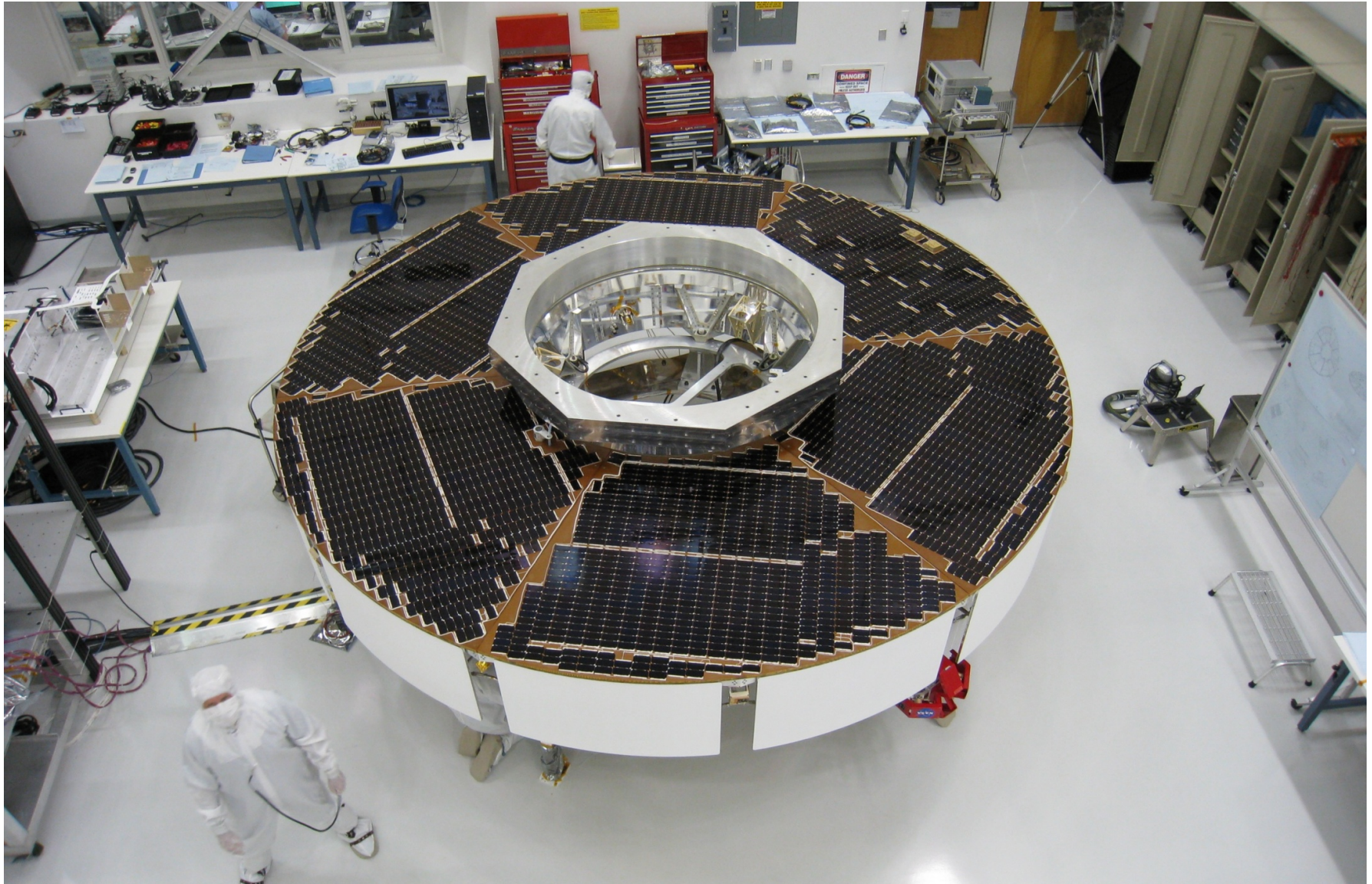


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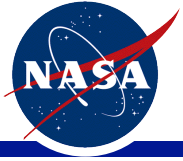
SFMDT!



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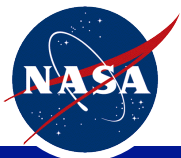
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Rover Touchdown Testing



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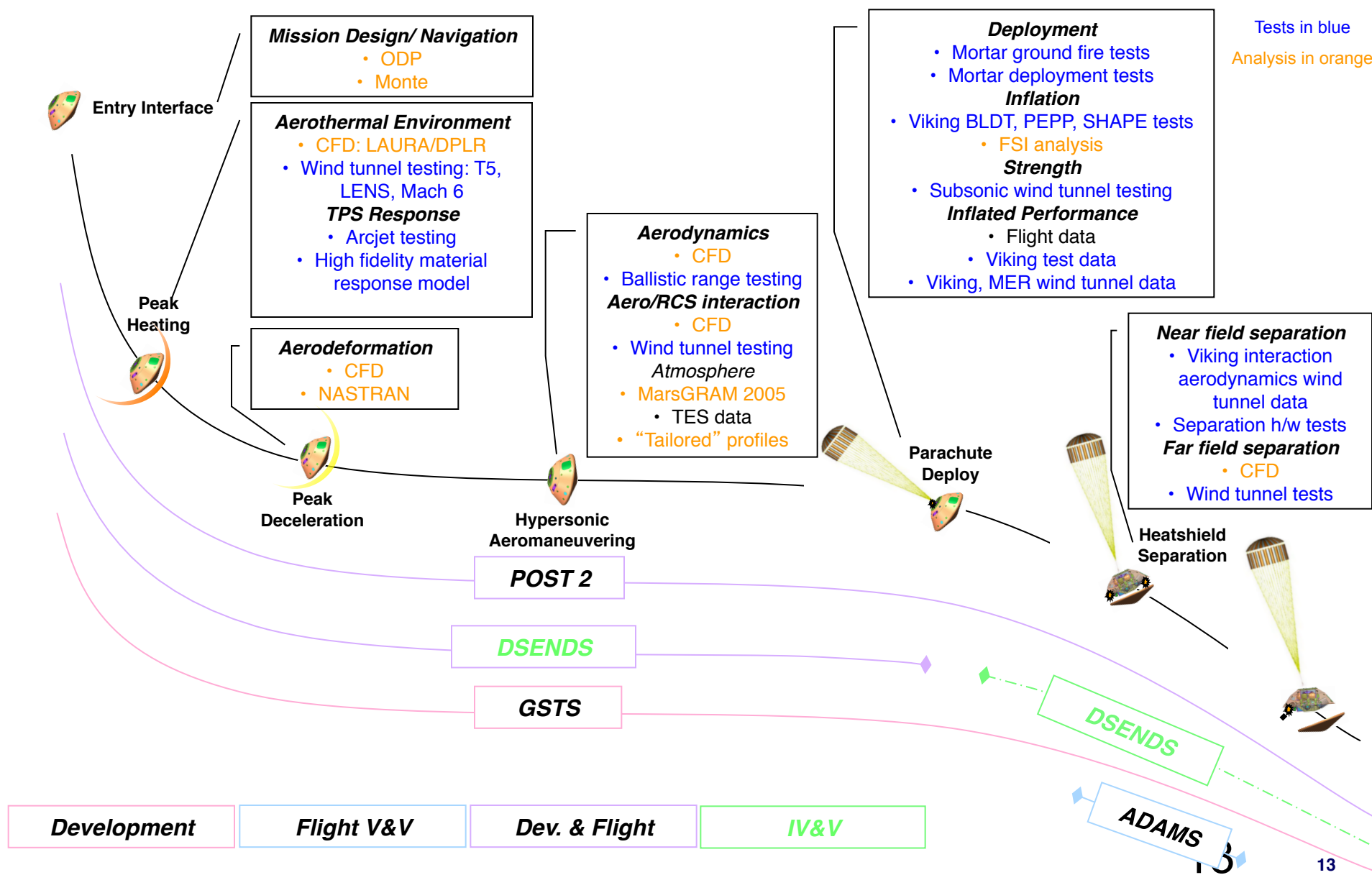


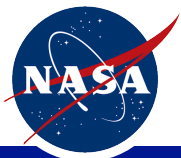
End to End EDL Analytical Validation(1/2)



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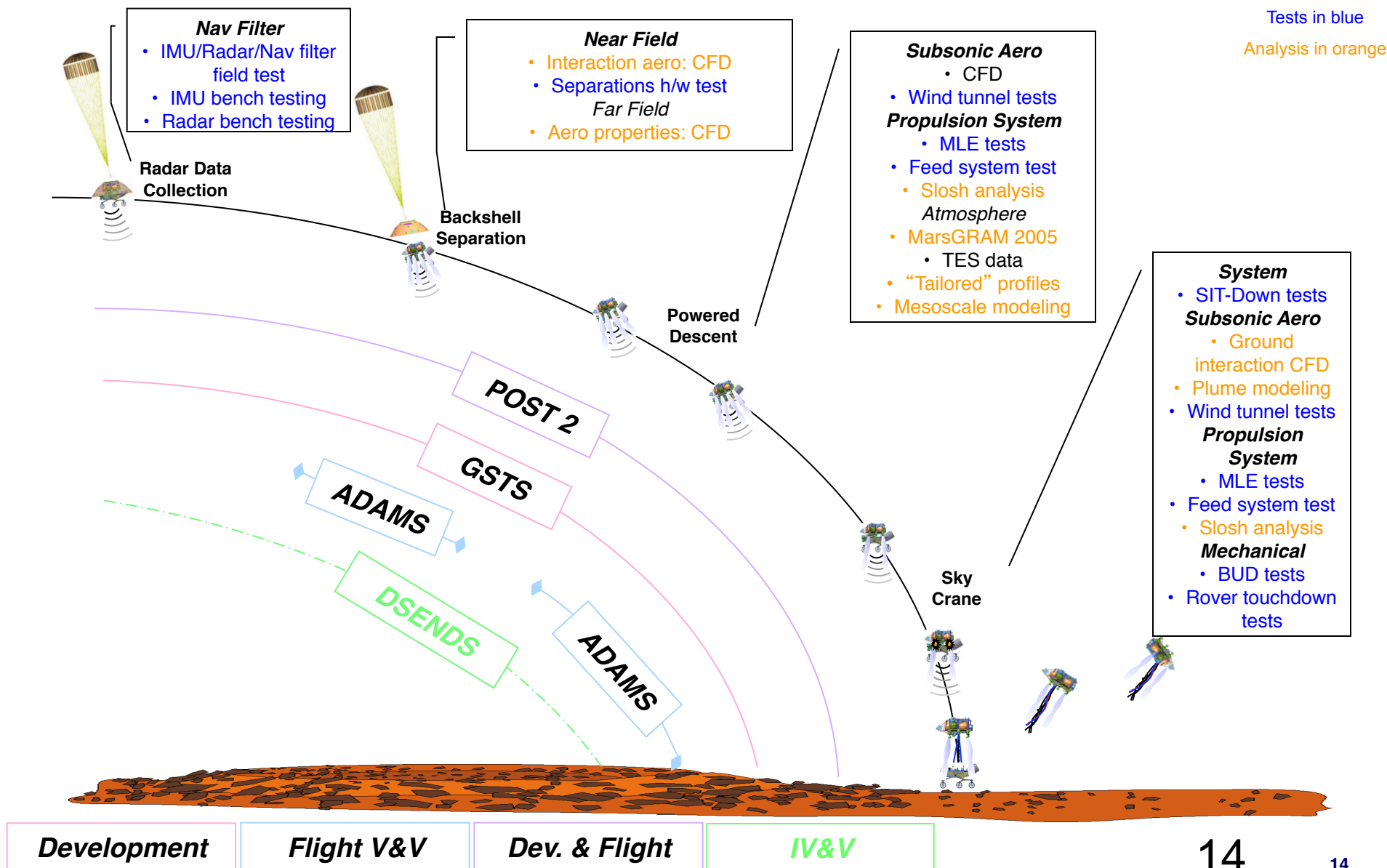


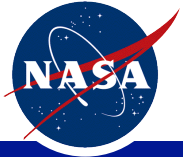
End to End EDL Analytical Validation(2/2)



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Landing Site Selection

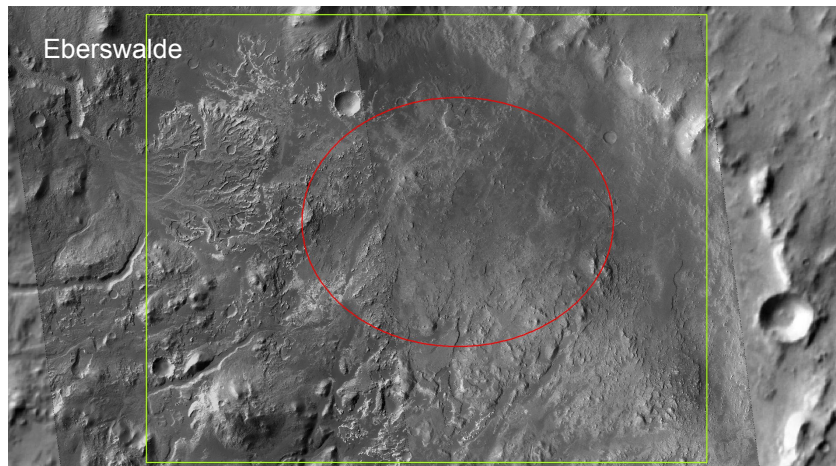
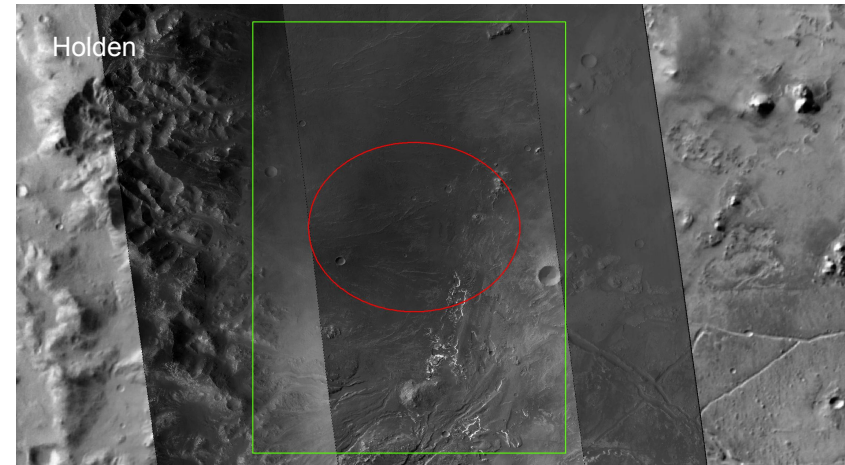
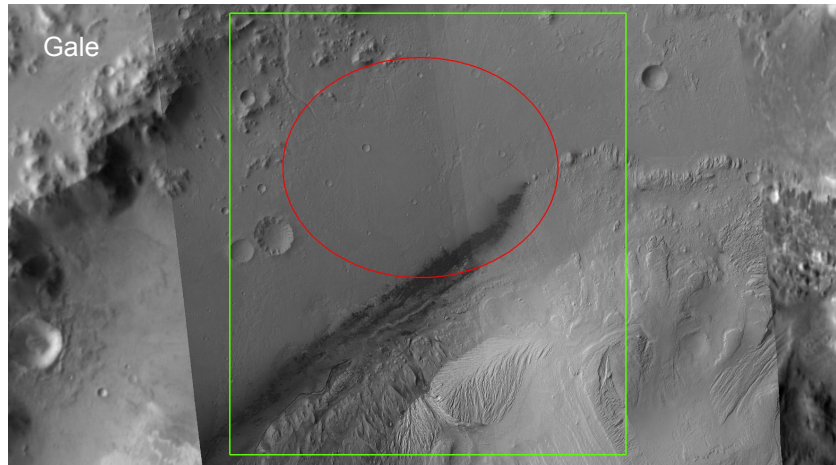


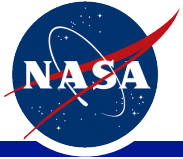
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Four Candidate Landing Sites

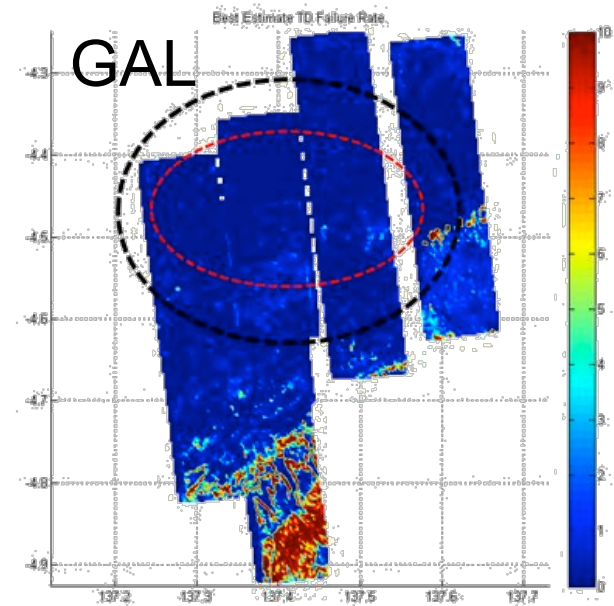
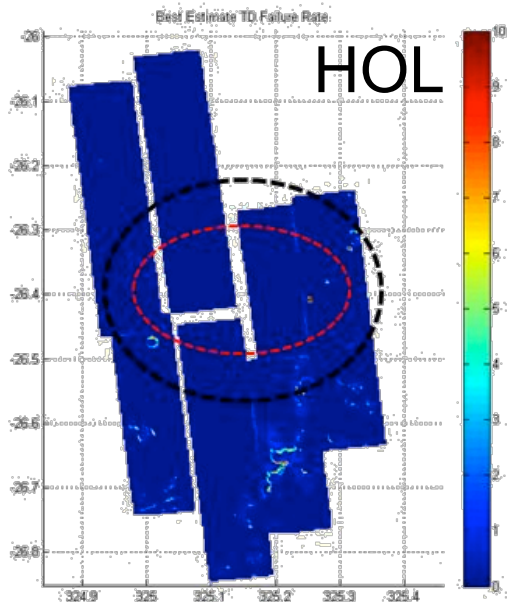
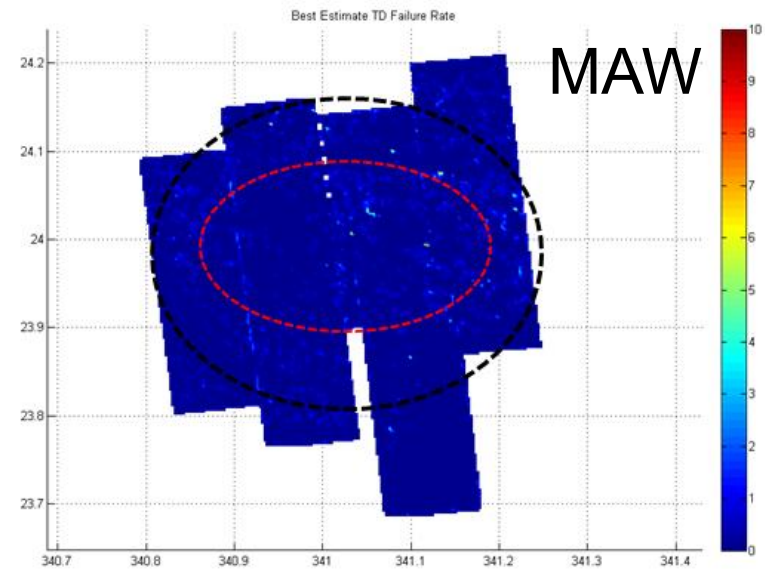
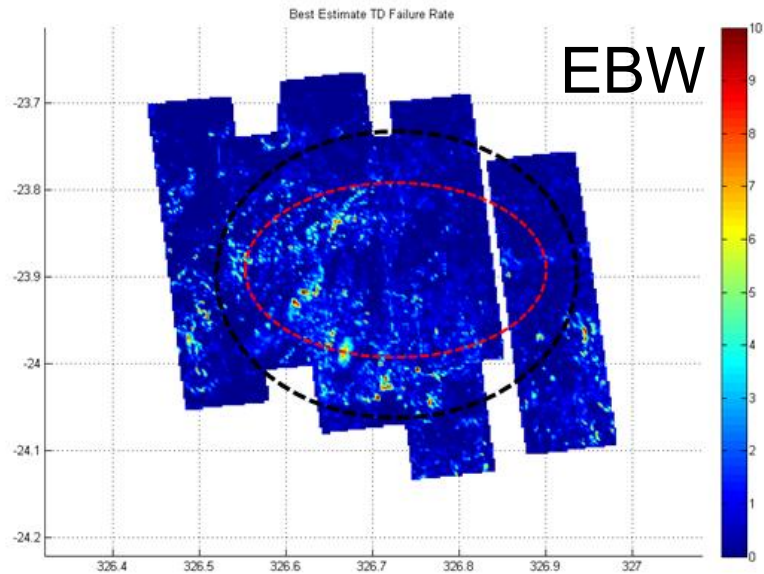


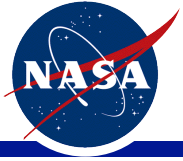
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Touchdown Hazard Maps



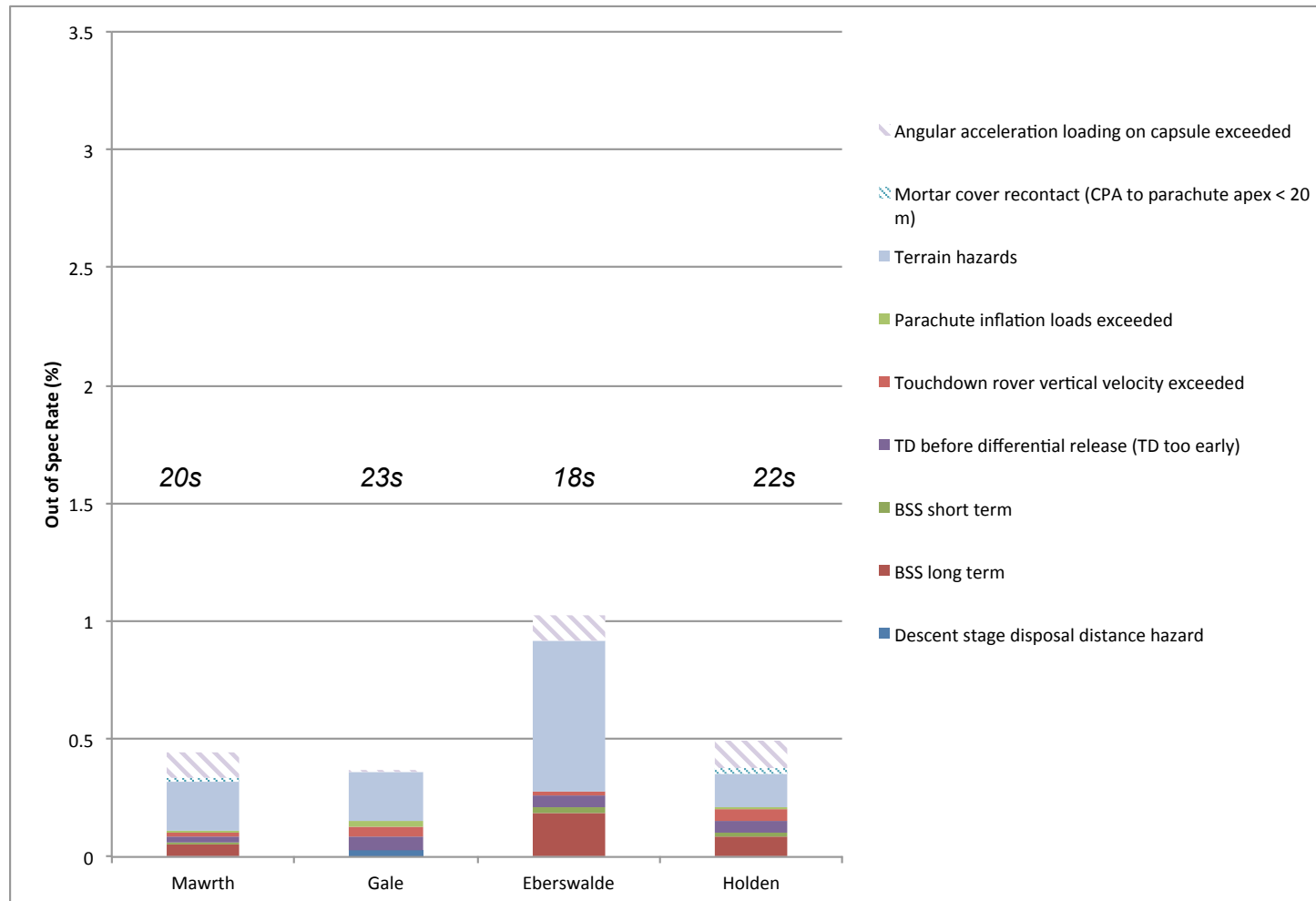


EDL Performance: Out of Spec Percentages



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EDL Risk Summary



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- Margins are generous at all landing sites and driven by site elevation
- Out of spec percentages are small across all landing sites
- Detailed tuning likely to reduce out-of-spec rate at any site but relative site-to-site risk variation not likely to change
- *Terrain remains the notable risk differentiator with site elevation improving already generous margins and reducing qualitative risks*

Site/Case	Mawrth	Gale	Eberswalde	Holden
Timeline Margin (1%-tile low)	20 s	23 s	18 s	22 s
Fuel Margin Above Allocation (1%-tile low)	45 kg	45 kg	40 kg	45 kg
In Spec	99.5%	99.6%	99.0%	99.4%

- *EDL team is very comfortable to fly to any site*



Launch Status



- MEDLI integrated into heat shield
- Heat shield and back shell and cruise stage are at KSC awaiting integration
- Pre-ship review for rover and descent stage held today
- Rover and descent stage ship 6/22!!
- Final pre-launch integrated system test (ST-9) to occur 7/18-7/30
- Launch window opens Nov 25th
- Arrival period opens Aug 6th, 2012!!!



Conclusions



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